

Household Energy Efficiency Measures

Cost range	Measure	CO2 Kg*	Notes
	Air dry clothes (year round)	708	In the summer clothes could be dried on an outdoor line, and all year they can be dried on indoor drying racks.
	Cooking savings	75	<p>Cooking consumes about 3% of household energy. There are many ways we can cut energy waste and greenhouse gas emissions. Most of them are free:</p> <ul style="list-style-type: none"> • putting lids on pots • cleaning the pan under the burner so it reflects more heat onto the bottom of the cooking vessel • using a Crockpot, toaster oven or microwave instead of turning on the oven when appropriate • putting the extra coffee in a thermos instead of keeping the coffee pot plugged in all morning • avoid using the toaster for one slice of bread at a time (can put as much carbon into the air - from its use of fossil-fueled electricity - as the bread contains in carbon as carbohydrate.)
	Home office equipment savings		<p>Home computers, printers, scanners, copiers, fax machines, lights, TVs, stereos, fans, and other widgets are often left on when not being used. When the RMI report was written (about 10 years ago) in the US, some 35 million computers, 11 million printers, 7 million fax machines, and 4 million copiers call home "home." RMI estimates that households that do have computers could reduce electricity consumption of such equipment by such no cost measures as:</p> <ul style="list-style-type: none"> • turning them off at night (nearly three million users keep their computers, and, presumably, other home office equipment, on 24/7/52: one computer on all year uses 1,230 kWh costing \$98 per year and emits, needlessly, 1,460 lbs of CO2 for the on-time of 20 hrs beyond the ~4 hrs of use-time per day for the typical home computer)
	Increase A/C thermostat by 1.7°C	154	Many homes and offices are colder in summer than they are in winter! Use a programmable thermostat to automate this. Also increase temperatures even more when the house is not occupied.
	Lower thermostat in winter by 1.2C	160	Use a programmable thermostat to automate this. Also reduce temperatures even more when the house is not occupied and overnight. Wear a sweater!
	Lower water heater temp to 50°C (gas) or 60°C (electric)	97	Domestic water heaters, particularly electric, can be contaminated by Legionella so it is recommended to set the temperature to 60°C but gas water heaters can operate safely at a lower temperature (50°C.)

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	Take short (navy) showers	3000	<p>The potential savings are for a two person household. A typical shower takes as much as 230 L of water, while taking a short shower (www.climateactionnow.ca/navy-shower) (run shower to wet body, lather body and lather hair, run shower to rinse body, and optionally repeat to apply hair conditioner) can use as little as 11 litre; one person can save 80,000 litres per year. In 32 years that water could fill an Olympic size swimming pool. A household of 4 adults would take 8 years.</p> <p>Depending on how the water is heated, this measure could save up to 1,500 Kg CO2 /person /year. (DISCLAIMER: this calculation is preliminary and has not yet been confirmed.) Additional savings can be achieved by taking showers less frequently.</p> <p>Navy showers have three benefits:</p> <ul style="list-style-type: none"> • conserve water which is a finite resource • reduce the municipal cost of treating water and processing the extra sewage load • reducing the cost of heating the extra water.
	Turn off unneeded lights	171	Use timers or motion detectors for lights.
	Use windows and shades		Use curtains and shades on your windows, to keep the heat in during the winter. Use window shades to reduce or block sunlight and heat during the summer, particularly if you have windows that receive direct sunlight.
	Unplug extra fridge in garage	203	
	Use energy-saving appliance features	349	New models of dishwashers have energy saving options which let dishes air dry. New models of driers have moisture sensors to stop the drier when clothes are dry.
	Wash clothes in cold water	148	In addition to saving energy, your clothes will probably last longer.
	Get rid of one car	11450	If you have more than one car, get rid of all of them if at all possible. Use transit for urban travel and buses or trains for longer trips. Campaign for transit if it not available and improved transit elsewhere. Rent a car for travel where the other options are not available. Use a bike and campaign for bike lanes (dedicated ideally.) www.epa.gov/oms/consumer/f00013.htm
	Stop flying, especially for short trips		Flying, especially for short-haul flights, generates a lot of emissions. Use buses or trains where possible. www.offsetters.ca/for-individuals/calculators/flight-emissions-calculator
	Become vegan/vegetarian		www.scientificamerican.com/article.cfm?id=the-greenhouse-hamburger - The Greenhouse Hamburger www.fao.org/newsroom/en/news/2006/1000448/index.html - FAO report - Livestock a major threat to environment
	Cut phantom loads by half	142	<p>Many appliances use electricity even when they're turned off: TVs with instant on, telephone answering machines, VCRs, and plug-in tools all use ~2-6 watts. Researchers at the Lawrence Berkeley National Laboratory estimated that such "phantom" or stand-by loads consume an average of 67 continuous watts in the typical home, and waste 587 kWh, \$47, and 840 lbs of CO2 per year. These figures are from around year 2000, and since then the number of appliances using phantom power has increased. Devices such as Kilowatt can be used to measure the consumption of devices.</p> <p>You can disconnect the equipment (NO COST) or purchase power-bars (LOW COST) which can control a number of pieces of equipment (such as for a home computer).</p>
	Fix hot water leaks	15	Repair dripping faucets and shower heads. Will conserve water as well as reduce emissions.
	Install faucet aerators	50	Low-flow aerators (8.35L/min) cost about \$1.50

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\$	Replace 1 exterior incandescent bulb with compact fluorescent light (CFLs) or LED	95	95 Kg per bulb. The savings here are for CFLs although the savings for newer LEDs would be greater. Take care to dispose of CFLs according to your municipalities rules because of the toxic mercury they contain. LEDs do not contain mercury.
\$	Replace 6 interior incandescent bulbs with compact fluorescent lights (CFLs) or LED	=43*6	43 Kg per bulb. The savings here are for CFLs although the savings for newer LEDs would be greater. Take care to dispose of CFLs according to your municipalities rules because of the toxic mercury they contain. LEDs do not contain mercury.
\$\$	Add air gap window films	333	Window insulation kits can be purchased at a cost of around \$4/window. They can be left in place or reinstalled each season. They are also known as window insulation shrink film because they require the use of a hair drier to make it fit properly.
\$\$	Add Low-E window films	171	To keep the sun's heat out of the house (for hot climates, east and west-facing windows, and unshaded south-facing windows), the Low-E coating should be applied to the outside pane of glass. If the windows are designed to provide heat energy in the winter and keep heat inside the house (typical of cold climates), the Low-E coating should be applied to the inside pane of glass. Window films sell for around \$45/window.
\$\$\$	Heating system tune-up	241	In addition to an annual furnace cleanup and inspection, clean or replace the furnace filter every couple of months.
\$\$\$	Switch to renewable electricity		In Toronto, you can sign a contract to have your electricity provided by Bullfrog Power from renewable wind-power
\$\$\$	Switch to renewable natural gas	5000	In Toronto, you can sign a contract to have your natural gas provided by Bullfrog Power by capturing and cleaning gas produced through the decay of organic matter in our everyday waste stream
\$\$	Home office equipment savings	62	RMI estimates that households that have computers could reduce electricity consumption of such equipment by such measures as: <ul style="list-style-type: none"> • upgrade to electricity-saving laptops when buying a new computer (laptops use about 15 W compared to 140 W for typical desktops), • buy EnergyStar office equipment and enable associated software, and • plug computers, printers, and desk lights into an occupancy-sensing control strip that turns selected equipment off when you're not around.
\$\$\$	Install a programmable thermostat	486	Costs between \$40 and \$150. Easy to install.
\$\$\$	Install efficient shower heads	168	More emissions (and money) will be saved by using shorter showers. Low-flow shower heads can be purchased for under \$30.
\$\$\$	Insulate hot & cold water pipes	24	
\$\$\$	Insulate water heater	119	Wrapping a fiberglass insulation blanket around your heater (assuming that the manufacturer says it is safe to do so.) Be very careful not to block the flue or air intake on a gas water heater. Never insulate the top of a gas water heater.
\$\$\$	Occupancy sensor (for electronic equipment)	30	Plug computers, printers, and desk lights into an occupancy-sensing control strip that turns selected equipment off when you're not around.
\$\$	Roof whitening	214	White roofs reflect heat during the summer. This might not be so useful in colder climates. If new roofing is financially out of reach, painting the old roof white with special reflective paint called hyperseal paint can work much the same magic. www.consumerenergycenter.org/coolroof/
\$\$\$	Seal large air leaks	676	Get a caulking gun and caulk. Use the smoke from incense (carefully) to check for air leaks and apply caulk where necessary.
\$\$\$	Weatherize windows, doors	282	energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11280

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\$\$\$	Add an attic radiant barrier	85	In a hot climate, add a radiant barrier to reject unwanted solar gain. energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11680
\$\$\$	Add attic insulation	972	cmhc-schl.gc.ca/en/co/maho/enefcosa/enefcosa_002.cfm
\$\$\$	Add basement insulation	521	www.cmhc-schl.gc.ca/en/co/maho/enefcosa/enefcosa_002.cfm - CMHC notes on insulation. Take care when insulating a basement in an old house with a rubble foundation or when there is moisture/water leaking through the foundation.
\$\$\$	Add solar water heating system	678	According to the US EESI, residential solar water heater systems cost between \$1,500 and \$3,500, compared to \$150 to \$450 for electric and gas heaters. With savings in electricity or natural gas, solar water heaters pay for themselves within four to eight years. And solar water heaters last between 15 and 40 years--the same as conventional systems--so after that initial payback period is up, zero energy cost essentially means having free hot water for years to come. This may not be cost-effective if you wash clothes in cold water and take short, navy showers. You still need a water heater for those days when there is not enough sunlight. period is up, zero energy cost essentially means having free hot water for years to come.
\$\$\$	Add wall insulation	389	In an old double brick house with lath and plaster walls it might be best to insulate the walls on the exterior (cmhc-schl.gc.ca/en/co/maho/enefcosa/enefcosa_002.cfm)
\$\$\$	Change to front loading clothes washer	148	Conserves water which conserves energy too. Reduces drier emissions due to more efficient spin cycle (assuming you do not air dry.) Front loading washers cost between \$500 and \$5500.
\$\$\$	Heating system modification	241	This is a Rocky Mountain Institute (RMI) term but it is not defined in their report. Modifications that can be made to your heating system include creating zones in your home with individual thermostats, so that unused rooms are not being heated.
\$\$\$	New Air Conditioning unit (from 9.0 to 12.0 SEER)	214	Many households use fans and natural ventilation (windows!) to avoid the use of air conditioners altogether. Currently models up to 20 SEER are available.
\$\$\$	New efficient refrigerator	376	
\$\$\$	New furnace (from 0.50 to 0.96 Annual Fuel Utilization Efficiency (AFUE))	1924	Switching from a low-efficiency or mid-efficiency to a high-efficiency furnace will cost about \$5,000, and should cut your heating bills by, on average, about 35 per cent. CMHC notes on furnace efficiency (www.cmhc-schl.gc.ca/en/co/reno/refresh/refresh_018.cfm) High efficiency gas furnaces (up to 96% efficiency) require external air input/output vents.) Some utilities and Canadian provinces provide rebates to partially offset this cost.
\$\$\$	Seal and insulate ducts	686	www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_ducts
\$\$\$	Upgrade to high-performance windows	441	Use triple glazed, argon filled, windows where possible. Cost around \$500/window installed. Make sure that the installer insulates the gap between the new sing and the exterior walls. If the windows are the original windows in a house built before 1940 it may be better to leave them alone.
\$\$\$	Use a tankless, or on-demand, water heater		First consider using cold water for laundry and other ways of reducing hot water.
\$\$\$	Change to low-flow toilets		Rebates may be available.

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